

**REMARKS**

Claims 6-46 and 51-74 are currently pending in the application. Claims 6, 29, 30, 51, 66 and 67 are amended. The amendments find support in the specification and are discussed in the relevant sections below. No new matter is added.

**Rejections Under 35 U.S.C. §112, First Paragraph:**

The Office Action rejected claims 29-31 and 51-74 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The Office Action stated:

The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

**On page 44, lines 14-17, of the instant disclosure as filed a statistical program is cited to identify groups of attributes as representing a particular relationship** but is not described as being generically performing one or more statistical operations without further limitation as set forth in newly added claims 29-31. This broadening of statistical operation practice over the above disclosure as filed is NEW MATTER. This broadened statistical practice is also set forth in claims 66-68. (May 4, 2004 Office Action; Page 2)(Emphasis added)..

With this Response, Applicant has amended claims 29, 30, 66 and 67 in order to parallel the language recited on page 44, lines 14-17 (cited in the rejection) of the specification as filed. As such, the Applicant respectfully requests reconsideration and allowance of claims 29, 30, 31, 66, 67 and 68.

The Office Action continued:

In claim 51, line 2, a user with a tissue microarray is provided. It is noted that user access to microarray data for a variety of purposes is disclosed as filed, but consideration of the entire disclosure as filed has not revealed the providing of a user “with” a tissue microarray indicative of some particular providing as now set forth in the claims. This providing practice therefore is NEW MATTER. (May 4, 2004 Office Action; Pages 2-3).

For the purpose of furthering prosecution of the pending claims, Applicant has amended claim 51, line 2 to remove reference to a "user". As such, the Applicant respectfully requests reconsideration and allowance of claims 51-74.

With these amendments, Applicant has overcome the rejections under 35 U.S.C. §112, first paragraph. As such, Applicant respectfully requests reconsideration and allowance of pending claims 6-46 and 51-74.

Rejections Under 35 U.S.C. §112, Second Paragraph:

The Office Action rejected claims 6-46 and 51-74 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Office Action stated:

In claim 6, line 4, the phrase "the network" is indicative of some previously cited network in the claim. Due to a lack of a previously cited network said phrase lacks clear antecedent basis as to what is meant thereby. Clarification via clearer claim wording is requested. Claims which depend directly or indirectly from claim 6 also contain this unclarity due to their dependence. (May 4, 2004 Office Action; Page 3).

With this Response, Applicant has amended claim 6 to correct the antecedent basis for the term "network". As such, Applicant believes this rejection is overcome.

The Office Action continued:

In claim 6, line 2, the phrase "specimen-linked" is set forth which causes the claim to be vague and indefinite as to what the specimen is linked to due to a lack of linkage metes and bounds in the claim. For example, is each microarray in the claim linked to a specimen? Is the database linked to a specimen? Clarification via clearer claim wording is requested as to what specimen linkage is meant. Claims which depend directly or indirectly from claim 6 also contain this unclarity due to their dependence. (May 4, 2004 Office Action; Page 3).

Applicant respectfully disagrees with the Office Action's claim that the term "specimen-linked database" renders the claims indefinite.

The pending application is entitled "Specimen-Linked Database." The majority of the specification is directed towards defining the type of data which is found within the specimen-linked database. More specifically, the specification discloses:

In one aspect, the invention provides panels of tissue standards along with access to an tissue information system. In one embodiment according to this aspect, the tissue information system comprises a **specimen-linked database** which is in communication with an information management system. **The specimen-linked database is a repository of information including, but not limited to, information relating to phenotype, genotype, pathology, and expression of biomolecules in tissues, and including information relating to the medical history of the individuals who are the sources of tissues being analyzed. The database also provides demographic and epidemiologic information on populations of individuals who provide tissues which have been, or are being, analyzed.** (Page 4, Lines 1-9)(Emphasis added).

...As used herein, a "specimen-linked database" is a database which **cross-references information in the database to tissue specimens provided on one or more microarrays, and preferably using codes, such as SNOMED® codes, ICD-9 codes, and/or DSM-IV TR codes.** (Page 18, Lines 13-16)(Emphasis added).

**Information within the specimen-linked database 5 is dynamic, being added to and refined as additional users access the database 5 through the system 1. In one embodiment, inputted information at least comprises information relating to the analyses of the tissue microarrays 13 described above and the database 5 organizes this information according to a data model.** Data models are known in the art and include flat file models, indexed file models, network data models, hierarchical data models, and relational data models. Flat file models store data in records composed of fields and are dependent upon the particular applications comprising the IMS 7, e.g., if the flat file design is changed, the applications comprising the IMS 7 must also be modified. Indexed file systems comprise fixed-length records composed of data fields and indexes which group data fields according to categories. (Page 34, Lines 14-23)(Emphasis added).

...As used herein, although the database is described as being "specimen linked" **the database can also include data unrelated to specific test specimens.** (Page 38, Lines 29-30)(Emphasis added).

As shown by the above-passages, Applicant believes the term "specimen-linked database" is clearly described in the specification as filed. As such, Applicant respectfully requests reconsideration and allowance of claims 6-46 and 51-74.

With this Response, Applicant has overcome the rejections under 35 U.S.C. §112, second paragraph. As such, Applicant respectfully requests reconsideration and allowance of pending claims 6-46 and 51-74.

Rejections Under 35 U.S.C. §102(b):

The Office Action rejected claims 6-17, 19-28, 32, 39-43, 46, 51-65, and 69-74 under 35 U.S.C. 102(b) as being anticipated by PCT Publication No WO 99/44062 to Kallioniemi et al. ("the Kallioniemi et al. reference"). The Office Action stated:

Kallioniemi et al. discloses the practice of tissue arrays in the abstract. The arrays of said abstract are reasonably interpreted as microarrays as instantly claimed because the microarray practice described in the instant specification lacks any limitation as to array size or density of tissue samples thereon which limits such interpretation other than that multiple tissues samples are deposited on such microarrays as is also set forth in said reference. EXAMPLE 1, however, does specifically cite a microarray as noted below. The arrays of the reference are identified by an identifier as to the type or source of tissue samples thereon, such as set forth in various examples of the arrays of the reference. EXAMPLE 1 is illustrative of an array identified as a breast cancer tumor tissue microarray starting on page 23 of the reference. A user interface for accessing desired array information including coordinates of samples on arrays (see specifically page 22, line 5, as in instant claims 7-15), which are set forth therein in databases, including a network connection is set forth on page 20, line 11, through page 23, line 25, as well as including output devices such as a display etc. Figures 25-27 depict image representations of tissue samples on microarrays as required in instant claims 11 and 12. Gene expression related to tumors (cancer) is analyzed in EXAMPLE 4 on page 25 of the reference as also required in instant claims 16 and 17. Relationship searching for tumor marker profiles, for example, is cited on page 23, lines 15-25, as also required as an example embodiment of the instant claims 19-22. Other computers as a user as required in instant claim 23 is disclosed in the reference on page 20, lines 18-22. A hand held device which inherently has a wireless aspect to its operation is also cited on said page 20, line 17, as required in instant claim 24. Remote communications as set forth on page 20, lines 20-22, are well known to require a server as required in instant claim 25. The

chemotherapy as set forth in the reference on page 24, line 1, describes drug exposure of tissue samples relating to efficacy as required in instant claim 32. These disclosures anticipate the above listed instant claims.(May 4, 2004 Office Action; Pages 4-5).

With this Response, Applicant has amended claim 6 to further differentiate the claimed system from the Kallioniemi et al. reference. As such, Applicant respectfully requests reconsideration and allowance of claims 6-17, 19-28, 32, 39-43, 46, 51-65, and 69-74.

To anticipate a claim, the reference must teach every element of the claim. M.P.E.P. 2131. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987); M.P.E.P. 2131. "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989); M.P.E.P. 2131.

As amended, the Applicant's claim **a tissue information system comprising a specimen-linked database** comprising information about at least one tissue microarray identified by an identifier **wherein the tissue microarray comprises samples from a patient**. The specimen-linked database **further comprises information about samples having a known biological characteristic**. As amended, the claims require **a database searching function** allowing a user to design queries to obtain information from the specimen-linked database and **a relationship determination function** allowing the user to identify relationships between a plurality of biological characteristics. As such, the Applicant's claimed invention provides a database comprising a wide-range of information concerning samples with a known biological characteristic. The Applicant's claimed system would be instrumental in the diagnosis of a patient.

Support for the amendments can be found throughout the specification as filed. More specifically:

In one aspect, the invention provides panels of tissue standards along with access to an tissue information system. **In one embodiment**

**according to this aspect, the tissue information system comprises a specimen-linked database which is in communication with an information management system.** The specimen-linked database is a repository of information including, but not limited to, information relating to phenotype, genotype, pathology, and expression of biomolecules in tissues, and including information relating to the medical history of the individuals who are the sources of tissues being analyzed. The database also provides demographic and epidemiologic information on populations of individuals who provide tissues which have been, or are being, analyzed.

**In one embodiment, the information management system which is coupled to the database includes database search and relationship determination functions.** The database search function enables the user to design queries to obtain information about tissues in the database, while the relationship determination function enables the user to identify relationships between different biological characteristics of tissues (e.g., the relationship between the expression of biomolecules and patient information). Relationships so determined can be stored in a relational subdatabase of the database. (Page 4, Lines 1-16)(Emphasis added).

In addition, various embodiments of the database search function and the relationship determination function are found throughout the specification.

As for "patient information", the specification reads::

As used herein, the term **"information about the patient"** refers to any information known about the individual (a human or non-human animal) from whom a tissue sample was obtained. The term "patient" does not necessarily imply that the individual has ever been hospitalized or received medical treatment prior to obtaining a tissue sample. The term "patient information" includes, but is not limited to, age, sex, weight, height, ethnic background, occupation, environment, family medical background, the patient's own medical history (e.g., information pertaining to prior diseases, diagnostic and prognostic test results, drug exposure or exposure to other therapeutic agents, responses to drug exposure or exposure to other therapeutic agents, results of treatment regimens, their success, or failure, history of alcoholism, drug or tobacco use, cause of death, and the like). The term "patient information" refers to information about a single individual; information from multiple patients provides "demographic information," defined as statistical information relating to populations of patients, organized by geographic area or other selection criteria, and/or "epidemiological information," defined as

information relating to the incidence of disease in populations. (Page 12, Lines 13-26)(Emphasis added).

Further, the specification discloses the types of information which is located in the specimen-linked database; this information is all of a known biological characteristic. A biological characteristic is defined as:

As used herein, the term **“biological characteristics of a tissue”** refers to the **phenotype and genotype of the tissue or cells within a tissue, and includes tissue type, morphological features; the expression of biological molecules within the tissue** (e.g., such as the expression and accumulation of RNA sequences, the expression and accumulation of proteins (including the expression of their modified, cleaved, or processed forms, and further including the expression and accumulation of enzymes, their substrates, products, and intermediates); and the expression and accumulation of metabolites, carbohydrates, lipids, and the like). A biological characteristic can also be the ability of a tissue to bind, incorporate, or respond to a drug or agent. “Biological characteristics of a tissue source” are the characteristics of the organism which is the source of the tissue (e.g., such as the age, sex, and physiological state of the organism). (Page 14, Lines 1-10)(Emphasis added).

Contrary to the Applicant's claimed invention, the Kallioniemi et al. reference merely discloses:

The present invention provides a **method of high-throughput large-scale molecular profiling of tissue samples (such as tumors) with minimal tissue requirements**, in a manner that allows a rapid parallel analysis of tissue specimens, in which a plurality of donor specimens are placed in assigned locations in a recipient array, and a plurality of sections are obtained from the recipient array so that each section contains a plurality of donor specimens that maintain their assigned locations

A different tissue analysis (such as a histological, immunologic or molecular analysis) is performed on each section, **to determine if there are correlations between the results of the different analysis at corresponding locations of the array**. (Kallioniemi et al; Page 4, Lines 5-15).

As such, Kallioniemi et al. discloses a method of preparing tissue microarrays. Further, Kallioniemi et al. discloses a method of correlating results from a first tissue microarray to a second tissue microarray. However, Kallioniemi does NOT disclose a tissue information system.

More specifically, Kallioniemi et al. does NOT disclose a tissue information system comprising a **specimen linked database** and further comprising a **database search function** and a **relationship determination function**. Also, Kallioniemi et al. does NOT comprise a database of samples of known biological characteristics.

Since the Kallioniemi et al reference does not disclose each element of the claimed invention (as amended), Applicant respectfully submits that the Kallioniemi et al. reference does not anticipate the Applicants claimed invention. As such, Applicant respectfully requests reconsideration and allowance of claims 6-17, 19-28, 32, 39-43, 46, 51-65, and 69-74.

Objections To The Disclosure:

The Office Action objected to the disclosure due to the following informalities:

In the specification on page 31, lines 7 and 26, blanks are present that must be amended to fill them in. (May 4, 2004 Office Action; Page 5).

With this Amendment, Applicant has made the requested amendment. As such, the cited objection to the disclosure is obviated.

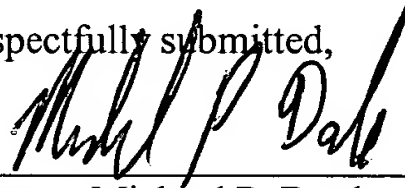
With this Amendment, Applicants have made an earnest effort to respond to all issues raised in the Office Action of June 18, 2003, and to place all claims presented in condition for allowance. No amendment made was for the purpose of narrowing the scope of any claim, unless Applicants have argued herein that such amendment was made to distinguish over a particular reference or combination of references.



Applicant submits that all claims are allowable as written and respectfully request early favorable action by the Examiner. If the Examiner believes that a telephone conversation with Applicant's attorney/agent would expedite prosecution of this application, the Examiner is cordially invited to call the undersigned attorney/agent of record.

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Respectfully submitted,



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